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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,390	01/16/2002	Stephen F. Gass	SDT 319	2969

27630 7590 06/16/2006

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ART UNIT	**PAPER NUMBER**
3724	

DATE MAILED: 06/16/2006

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/053,390
Filing Date: January 16, 2002
Appellant(s): GASS ET AL.

David A. Fanning
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 03/28/06 appealing from the Office action mailed 12/28/05.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

a. Appeal of application serial number 09/929,221 (appeal brief filed, awaiting examiner's answer).

b. Appeal of application serial number 09/929,227 (appeal brief filed, awaiting examiner's answer).

c. Appeal of application serial number 09/929,238 (appeal brief filed, awaiting examiner's answer).

d. Appeal of application serial number 09/929,240 (appeal brief filed, awaiting examiner's answer).

e. Appeal of application serial number 09/929,242 (appeal brief filed, awaiting examiner's answer).

f. Appeal of application serial number 09/929,425 (appeal brief filed, awaiting examiner's answer).

g. Appeal of application serial number 09/929,426 (examiner reopened prosecution after appellant filed an appeal brief).

h. Appeal of application serial number 10/100,211 (notice of appeal filed, awaiting examiner's answer).

i. Appeal of application serial number 10/189,027 (appeal brief filed, awaiting examiner's answer).

j. Appeal of application serial number 10/189,031 (notice of appeal filed, awaiting examiner answer).

k. Appeal of application serial number 10/243,042 (examiner reopened prosecution after appellant filed an appeal brief).

l. Appeal of application serial number 10/292,607 (allowed after notice of appeal filed).

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,858,095	FRIEMANN et al.	12-1974
5,921,367	KASHIOKA et al.	07-1999
6,150,826	HOKODATE et al.	11-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. With respect to the rejection of claims 1 and 24-29 under 35 U.S.C. 112, first paragraph, Appellant's argument is persuasive. Therefore, rejection of claims 1 and 24-29 under 35 U.S.C. 112, first paragraph, has been withdrawn.

B. Claim 1, 24, and 29 are stand rejected under 35 U.S.C. 103(a) as being unpatentable over Friemann et al. (3,858,095), hereinafter Friemann, in view of Kashioka et al. (5,921,367), hereinafter Kashioka. Regarding claim 29, Friemann teaches a method for detecting accidental contact between a person and a dangerous portion 5 of a woodworking machine 10. Friemann also teaches that the method includes the following steps: providing a first electrode electrically coupled to a person; providing a second electrode electrically coupled to the dangerous portion 5;transmitting a signal by one of the first or second electrodes; and detecting whether the transmitted signal is received by the other of the first or second electrodes. If an operator should touch the band saw, or the dangerous portion, the capacitance Cbm, which is connected to the band saw, is thereby changed and a voltage is transmitted from the bridge 3 to the amplifier circuit 4. The

voltage is considered to be the signal that is transmitted by one of the first or second electrodes. See Figs. 1-6 and col. 3, lines 6-67 in Friemann.

Friemann does not explicitly teach when the transmitted signal is received by the first or the second electrode, the signal is sampled a plurality of times to determine if the signal has at least one predetermined characteristic indicative of contact between a person and the dangerous portion.

Kashioka teaches a detective mechanism 1 that detects proximity of a person A to a dangerous portion 12. Kashioka also teaches a judging circuit 3 or a processing device that monitors the proximity of the operator's hand to the dangerous portion. Electrostatic capacitance sensor 1 detects the proximity of the person to the dangerous portion 12 and transmits a signal to the judging circuit 3 at any time. The judging circuit judges the incoming signals and stops the machine if the electrostatic capacitance exceeds a predetermined value. The increase of the electrostatic capacitance over the predetermine value is considered to be one predetermine characteristic indicative of contact between a person and the dangerous portion. The signal is sampled a plurality of times before the judging circuit 3 sends a control signal to the driving unit 11a. See Figs. 1-11 and col. 9, lines 1-62 in Kashioka. It should be noted that the distance between the person and the dangerous portion of the machine is adjustable. Therefore, the predetermined distance can be reduced to zero, which translates to an actual contact between the operator and the dangerous part. It would have been obvious to a person of ordinary skill in the art to provide Friemann's detector with the judging circuit and the sampling function, as taught by Kashioka, in order to ensure that a portion of the operator body is in contact with the

dangerous portion or in close portion proximity to the dangerous portion of the woodworking machine before the reaction system is activated.

Regarding claim 1, Friemann, as modified by Kashioka, does not explicitly teach that the signals are sampled a plurality of times within 200 microseconds. Kashioka teaches that the signal is sampled a plurality of times within a period of time. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manipulate the sampling period to a desired result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 24, Friemann, as modified above, teaches everything noted above including that the predetermined characteristic indicative of contact between a person and the dangerous portion distinguishes such contact from proximity between a person and the dangerous portion.

C. Claims 25-28 are stand rejected under 35 U.S.C. 103(a) as being unpatentable over Friemann in view of Kashioka, as applied to claim 1, and in further view Hokodate et al. (6,150,826), herein after Hokodate. Regarding claim 25-28, Friemann, as modified above, teaches everything noted above except that one predetermined characteristic indicative of contact between a person and the dangerous portion involves peak-to-peak amplitude, phase, a positive value, and a negative value. Friemann, as modified above, also does not teach that the detection of the distance between the two electrodes involves in-phase, maximum amplitude or pick-to-pick amplitude, and phase shifting, which inherently involves negative and positive values. However, Hokodate teaches a distance

detector 400 which has sampling circuit to sample the detection's output of the detecting circuit 8 a plurality of times within a predetermined of time to determine the actual distance between the two electrodes or workpiece 2 and a laser beam 4. Hokodate also teaches one predetermined characteristic indicative of contact between a person and the dangerous portion involves peak-to-peak amplitude, phase, a positive value, and a negative value. Hokodate also teaches that the detection of distance between the two electrodes involves in-phase, maximum amplitude or pick-to-pick amplitude, and phase shifting which inherently involves negative and positive values. See Figs. 1-16 and col. 11, lines 1-67 and col. 12, lines 1-64 in Hokodate. It would have been obvious to a person of ordinary skill in the art to replace Friemann's detection system, as modified above, with the detection system between the two electrodes, as taught by Hokodate, since the detection system in Friemann is functionally equivalent to the detection system in Hokodate, and both detection systems work the same.

(10) Response to Argument

In response to appellant argument that Koshioka is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Koshioka, similar to the Friemann and the instant application, teaches a safety system that detects proximity of a person to a dangerous portion of a machine and stops the operation or the rotation of dangerous portion. The dangerous portion in Koshioka may not be the

same dangerous portion in Friemann or the instant application. However, Koshioka's safety system utilizes the same concept to protect a person from injuries as the safety system in the instant application or Friemann. Similar to the safety system in the instant invention or in Friemann, Koshioka's safety system has a capacitive proximity detector that detects proximity of a person to a dangerous portion of an apparatus. Therefore, Koshioka's safety system is pertinent to the safety system in the instant application and Friemann is an analogous art.

Appellant's argument that Koshioka is not reasonably pertinent to the problem addressed by appellant, because Koshioka's rubber knealing machine does not teach a contact between a person and dangerous portion of a woodworking machine, is not persuasive. It should be noted that Friemann teaches contact between a band saw of a woodworking machine, similar to the instant application, and a person. Friemann does not explicitly teach the step of sampling a plurality of times within 200 microseconds the transmitted signal from the detector to determine that the signal at least has one predetermined characteristics of a contact. It should be noted that the dangerous portion could be defined as any part of the machine that is in the danger zone. For example, the dangerous portion in Friemann could be considered as the section of the table near the band saw, and the dangerous portion in Koshioaka could be considered as the bar 12 located above the rollers or the section of the frame near the rollers. In fact, appellant admits that the dangerous portion could be "a portion or region of a machine that is adjacent a cutting tool." See page 9, paragraph 1 in the Appeal Brief. It should be noted that the region adjacent to the cutting tool could be anywhere "near" the cutting tool.

Contact between a person and the bar or the frame or any region close to the rollers in Koshioaka is considered to be contact between a person and the dangerous portion. Therefore, Koshioaka and Friemann both teach contact between a person and a dangerous portion of a machine. Koshioka does not teach a woodworking machine and a cutting tool, as taught by Friemann. However, as stated above, Koshioka, similar to the instant application and Friemann, teaches a rotary tool and the concept of detecting a contact between a dangerous portion of the rotary tool and a person. Therefore, the capacitive proximity detector in Freimann and Koshioka are both employed to address the same problem addressed by appellant.

Appellant's argument that Friemann in view of Koshioka does not teach the step of sampling the signal a plurality of times within 200 microseconds is not persuasive. It should be noted that claim 1 merely recites, sampling the signal a plurality of times within 200 microseconds to determine if the signal has at least one predetermined characteristic indicative of contact between a person and the dangerous portion." It should also be noted that claim 29, does not even call for sampling of the signal within 200 microseconds.

Koshioka's safety system samples the detected signals by the capacitive detector a multiple times within a predetermine time to differentiate contact between a person and dangerous portion and contact between a rubber and the dangerous portion. The signals detected by electrostatic sensor 1 are supplied at any time to a judging circuit 3 to determine whether the signal or the electrostatic capacitance exceed from a predetermine value or not. If a rubber contacts the dangerous portion or region, electrostatic

capacitance increase due to the charge of the rubber and therefore the jugging circuit sends a signal to the drive member the operation of the rotary toll should continue. If the hand of a worker contacts the dangerous portion, the electrostatic capacitance exceed a predetermine value and the judging circuit instructs the drive member to stop the operation of the rotary tool. See col. 9, lines 5-36 in Koshioka. Therefore, within a predetermine time the signal is transmitted to the judging circuit to determine whether the dangerous portion is in contact with the rubber, a person, or air. The increase of the electrostatic capacitance over the predetermine value is considered to be one predetermine characteristic indicative of contact between a person and the dangerous portion. It should be noted that the time difference between transmit of the first signal and the following second signal to the judging circuit is insignificant and probably it is within with a few microseconds. In other words, the first signal and the second signal considered to have the same characteristics and to be the same, since they are transmitted within a few microseconds apart from one another. Therefore, sampling of the first and second signals is considered to be equivalent of sampling the first signal twice or a plurality of times. Therefore, within a predetermine time the signal is sampled a plurality of times to determine if the signal has at least one predetermined characteristic indicative of contact between a person and the dangerous portion.

Friemann in view of Koshioka does not explicitly disclose that the signal is sampled a plurality of times within 200 microseconds. Kashioka teaches that the signal is sampled a plurality of times within a period of time. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

manipulate the sampling period to a desired result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In other words, sampling of the signal (the first and second signals) could be performed within 200 microseconds.

Appellant's argument that Friemann does not teach that a first electrode is coupled to a person is not persuasive. Freimann teaches when an operator touches the band saw, or the dangerous portion, the capacitance Cbm, which is connected to the band saw, is thereby changed and a voltage is transmitted from the bridge 3 to the amplifier circuit 4. The human body has conductivity and dielectric constant and it is naturally part of the electric circuit that also includes the ground and the second electrode. When a person stands on the ground by the cutting machine and touches the cutting blade that is connected to a second electrode, the blade becomes couple to ground through the body of the person. In this case, the ground, person, and second electrode coupled to the band saw are part of an electric circuit. The first electrode is considered to be the ground that is naturally coupled to the person. A signal from the first electrode or the ground through the person, which is part of the electric circuit, is sent to the second electrode, when a person contacts the dangerous portion.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12) Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Ghassem Alie/GA

June 8, 2006

BOYER D. ASHLEY
SUPERVISORY PATENT EXAMINER

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